

Ecological Site Description—Rangeland

Riparian Subirrigated (RSb), 11–14" MAP

MLRA: 58AC – Sedimentary Plains, Central
R058AC617MT

1. Physiographic features: This site occurs within the floodplain adjacent to perennial streams and adjacent to flowing springs. Slopes are mainly 1-4%, but can range up to 15%. This site is also known as a "Lotic" (running water) riparian area. This site has a permanent water table within approximately 3.5 feet of the surface. In addition, this site will receive additional surface moisture from stream overflow. Surfaces, above the water table will typically not remain flooded or saturated for prolonged periods of time.

Landform: floodplain

Elevation (feet): 4000 – 6500

Slope (percent): mainly 1 - 4, can be up to 15

Depth to Water Table (inches): mainly 36 – 42

Flooding: frequent

Duration: mainly long (7 – 30 days)

Runoff Class: mainly low

Aspect: not significant

Influencing water features: Typically, these sites occur along streams of moderate energy as indicated by the presence of riffles. The floodplain/riparian area has a cross-section and profile which limits surface ponding. The upper part of the soil profile will begin to drain soon after an over-bank flow event has receded.

Stream Type: mainly B4, B5, B6, C2, C3, C4, C5, C6, DA3, DA4, DA5, DA6. (Rosgen Classification System)

2. Soils: These soils are hydric due to frequent flooding. The soils associated with this site are mainly deep or very deep (>60 inches). They tend to be medium (loamy or silty) to lighter (sandy) textured. They are generally in the aquic moisture regime or aquic intergrade and somewhat poorly or poorly drained. They generally have a very gravelly layer and permanent water table within 3.5 feet of the surface. This ground water is normally available to the plants throughout the growing season.

Redoxomorphic features (mottles) in the soil profile indicate that the level of the seasonal water table will tend to fluctuate during the year. The seasonal water table is mainly because of the site's hydrologic connection with the stream, as well as the result of flooding events, and is generally present for only a relatively short period of time. These soils are non-saline and non-sodic. They are non-calcareous or only slightly calcareous in the upper part.

Surface texture modifiers: mucky, gravelly, cobbly

Soil surface permeability (inches per hour): moderate (0.6 – 2.0) to moderately slow (0.2 – 0.6)

Drainage Class: poorly to very poorly

Reaction (pH) (1:1 water): mainly neutral to slightly alkaline (6.6 – 7.8)

3. Associated sites: Riparian meadow, Subirrigated, Stream Terrace.

4. Similar sites: Subirrigated, Riparian Meadow, Stream Terrace.

The Subirrigated site differs mainly by not being saturated to the surface and not being in the flood-prone area. The Riparian Meadow site differs by being mainly associated with an "E" stream type (Rosgen) and by being dominated by herbaceous species.

The Stream Terrace site differs mainly by not being in the "active" flood plain, typically having an overstory of cottonwoods or other trees, and the water table is typically too deep for most of the understory vegetation.

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5. Major Plant Community Types: The physical aspect of this site is a mixed shrub land. The plant community is typically dominated by a multi-layered structure of shrubs, grasses, sedges, rushes, and forbs. Willows and occasionally other shrubs such as Wood's rose, and currants/ gooseberries are conspicuous components of the site. Approximately 45 – 50% of the annual production is from grasses and grass-like, 5 – 10% is from forbs, and 40 - 45% is from willows and other shrubs.

Disturbances to this site, including non-prescribed grazing, will result in the decrease of the taller, more palatable species such as the beaked, Nebraska, and water sedges, mannagrasses, prairie cordgrass, wheatgrasses and reedgrasses. These plants will be replaced by smaller sedges, Baltic rush, meadow barley, and forbs.

Plants not a part of the potential natural community that are most likely to invade include **Kentucky, fowl, and Canada bluegrass, timothy, smooth brome, redtop, quackgrass, Canada thistle, dandelion, non-native clovers, leafy spurge, knapweeds, sulfur cinquefoil, annuals** and other weed species. Russian olive and salt cedar are common invader shrubs.

Plant Community 1: Obligate and Facultative Wetland Shrubs, Tall and Medium Grasses and Sedges, Forbs:

This is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC) for this site. This plant community contains a **high diversity of willows (Bebb, Booth, Yellow, Sandbar)**, tall sedges (**beaked, Nebraska, and water**), and grasses (**tufted hairgrass, American and fowl mannagrass, Northern and bluejoint reedgrass**). There are several other grasses, sedges, and rushes (**bearded wheatgrass, meadow barley, American sloughgrass, and Baltic rush**), along with a variety of forbs. Slight variations in climate and elevation may cause some minor shifting of the willow species, but the general proportions should remain somewhat constant.

This site is considered highly resilient to disturbance as it has minimal soil limitations for plant growth, plus a permanent water table within rooting depth. Changes may occur to the Historic Climax Plant Community due to management actions and/or climatic conditions. Under continued adverse impacts, a moderate decline in vegetative vigor and composition will occur. Under favorable vegetative management treatments, this site can more readily return to the Historic Climax Plant Community (HCPC).

Streams and their associated riparian areas are highly dynamic systems and are subject to events that other rangeland ecological sites are not, such as flooding. Major changes to the stream's geomorphology as a result of a significant flood event (e.g., a 100 year event) can be potentially catastrophic. Should the change to the geomorphology be severe enough (e.g., be changed from a C type to a D or G type), this site will cease to exist in that reach of stream until the channel progresses through several stages in its recovery, usually taking several years. Maintaining good vegetative cover, especially the willow component, is critical to maintaining the integrity, function and stability of this site.

Plant Community 2: Facultative Wetland Medium and Short Grasses, Sedges, and Rushes, Forbs: Slight disturbances and degradation to the HCPC typically results in a community dominated primarily of **smallwing sedge, Baltic rush, meadow barley**, along with forbs such as **silverweed cinquefoil**. Shrubs, such as **Wood's rose and gooseberry** often increase in this situation. Non-native grasses such as **Kentucky bluegrass and redtop** tend to become more abundant.

Plant biomass production and litter become reduced on the site as the taller grasses and some of the larger willows disappear, increasing evaporation and reducing moisture retention. Additional open space in the community can result in undesirable invader species. This plant community provides for moderate soil stability.

Plant Community 3: Facultative and Facultative Upland, Non-Native Grasses, Forbs: The plant community can experience some dramatic shifts with changes to the water table or flood frequency. As the permanent water table becomes lower as the result of a disturbance, the understory vegetation will begin to reflect the change with a reduction in the amounts of sedges, rushes, mannagrasses, and reedgrasses. These species are often replaced by such non-native grasses such as **Kentucky bluegrass, smooth brome, timothy, quackgrass, and redtop**. Species with a wider tolerance of wetness, such as **Baltic rush**, may persist with even limited available ground water.

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Dandelion, iris, Canada thistle, and other weed species also tend to increase under these conditions. The willows should persist provided the water table is still within their rooting zone.

This plant community is less productive than Plant Community 1 or 2 (< 1300 pounds per acre). The lack of litter and short plant heights result in higher soil temperatures, poor water infiltration rates, and high evapotranspiration, which gives plants like Kentucky bluegrass, redtop, and Baltic rush a competitive advantage over the deeper rooted cool season tall and medium sedges and grasses. This community has lost many of the attributes of a healthy rangeland, including good infiltration, minimal erosion and runoff, nutrient cycling and energy flow.

There are limitations to using seeding on this site because of the location of this site and the frequency of flooding. Brush control is not recommended as the willows and other shrubs are critical for the stability and function of this site.

Plant Community 4: Early Seral Species: After a major disturbance to the stream, there will be a period of time when the riparian plant community will be composed of pioneer or disturbance induced species as it begins to re-establish and stabilize. Species such as **sandbar (coyote) willow, yellow willow, creeping spikerush, brookgrass, American sloughgrass** and some forbs such as **willowherbs** are typically some of the first species to colonize a site.

Plant Community 5: "New" site: If disturbance to Community 3 continues, the potential for excessive lateral streambank erosion or stream incisement increases. Plants like Kentucky bluegrass do not possess the root mass necessary to protect the streambanks and riparian area from the erosive forces of the stream. With this lack of protection, the usual progression is for the stream to become braided and no longer have a functioning flood plain (e.g., **becomes a Rosgen D channel type**). (These can also sometimes degrade to a F or G channel type if the channel is not vertically stable.) The area may again stabilize after a period of time (often several years). The result is that the area that had been the Riparian Subirrigated no longer possesses the hydrology needed to support the Historic Climax or Potential Plant Community. A new riparian area is established at a lower elevation, typically having a plant community similar to 5 initially.

On sites that no longer frequently flood, the age class of willows will shift over time towards being predominately mature, provided there is still a permanent water table within their root zone. The sedges and rushes tend to be replaced by increasing amounts of **Kentucky bluegrass, redtop, timothy, and smooth brome**, as well as some native species such as **meadow barley and mat muhly**. **Baltic rush** often remains as a significant component. These sites will often become a Stream Terrace ecological site, which is typically located on low stream terraces in river systems. The willows will tend to be replaced by increasing amounts of **rose, gooseberry**, or other shrubs as the site tends to become drier. Tree species such as **cottonwood and Rocky Mountain juniper** often begin to occupy or dominate the site, eventually converting it to a forested site.

5a. Cover and structure (Historic Climax Plant Community)

COVER TYPE	BASAL COVER (%)	CANOPY COVER (%)	AVERAGE HEIGHT
Cryptogams	T-5	0-5	0.25 in.
Grasses/ sedges	15-25	50-60	18 in.
Forbs	1-5	1-10	12 in.
Shrubs	10-20	50-60	8 ft.
Trees	0-2	0-5	40 ft.
Litter	55-75		
Coarse fragments	0-T		
Bare ground	1-5		

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5b. Major Plant Species Composition - Historical Climax Plant Community

Common Name	Plant Symbol	Plant Group	Percent Comp.	Group Max. %	Mean Annual Precipitation (inches)			
					11	12	13	14
					(lbs./acre)	(lbs./acre)	(lbs./acre)	(lbs./acre)
Grasses and Sedges				40-45%	1980-2200	2025-2250	2070-2300	2115-2350
Beaked sedge	CAUT	6	5 – 10		220-440	225-450	230-460	235-470
Nebraska sedge	CANE2	6	5 – 10		220-440	225-450	230-460	235-470
Water sedge	CAAQA4	6	5 – 10		220-440	225-450	230-460	235-470
Woolly sedge *	CALA30	6	0 – 10		0-440	0-450	0-460	0-470
Woolfruit sedge	CALA11							
Swordleaf rush	JUEN	6	0 – 5		0-220	0-225	0-230	0-235
Torrey's rush	JUTO	6	0 – 5		0-220	0-225	0-230	0-235
Tufted hairgrass	DECE	2	10 – 15		440-660	450-675	460-690	470-705
American mannagrass	GLGR	6	5 – 10		220-440	225-450	230-460	235-470
Fowl mannagrass	GLST	6	5 – 10		220-440	225-450	230-460	235-470
Northern reedgrass	CANE	6	5 – 15		220-660	225-675	230-690	235-705
Bluejoint reedgrass	CACA4	6	5 – 10		220-440	225-450	230-460	235-470
Bearded wheatgrass	ELTRS	2	5 – 10		220-440	225-450	230-460	235-470
Slender wheatgrass	ELTRT	2	5 – 10		220-440	225-450	230-460	235-470
Brookgrass	CAAQ3	6	0 – 5		0-220	0-225	0-230	0-235
American sloughgrass	BESY	annual	1 – 5		44-220	45-225	46-230	47-235
Smallwing sedge	CAMI7	12	1 – 5	5	0-220	0-225	0-230	0-235
Meadow barley	HOBR2	14	1 – 5					
Baltic rush	JUBA	14	1 – 5					
Other native sedges	2PGL	6, 14	0 – 5					
Other native grasses	2GP		0 – 5					
Forbs				5 – 10	220-440	225-450	230-460	235-470
Field mint	MEAR4	20	0 – 5	5	0-440 No more than 220 for any one	0-450 No more than 225 for any one	0-460 No more than 230 for any one	0-470 No more than 235 for any one
Northwest cinquefoil	POGR9	24	0 – 5					
Willowherb spp.	EPILOB	20	0 – 5					
Leafy aster	ASFO	20	0 – 5					
Large leaved avens	GEMA	24	0 – 5					
Golden pea	THMO	20	0 – 5					
Rocky Mt. iris	IRMI	20	0 – 5					
Silverweed cinquefoil	POAN5	20	0 – 5					
Other native forbs	2FP		0 – 5					
Shrubs				40-45%	1760-1980	1800-2025	1840-2070	1880-2115
Sandbar (coyote) willow	SAEX	36	5 – 10		220-440	225-450	230-460	235-470
Yellow willow	SALU2	36	5 – 10		220-440	225-450	230-460	235-470
Pacific willow	SALA5	33	0 – 5		0-220	0-225	0-230	0-235
Booth willow	SABO2	33	10 – 20		440-880	450-900	460-920	470-940
Geyer willow	SAGE	33	0 – 10		0-440	0-450	0-460	0-470
Bebb willow	SABE2	33	0 – 5		0-220	0-225	0-230	0-235
Drummond willow	SADR	33	0 – 5		0-220	0-225	0-230	0-235
Water birch	BEOC	36	0 – T		0-T	0-T	0-T	0-T
Mountain alder	ALTE	36	0 – T		0-T	0-T	0-T	0-T
Woods rose	ROWO	37	1 – 5		44-220	45-225	46-230	47-235
Missouri gooseberry	RISE2	37	1 – 5		44-220	45-225	46-230	47-235
Red osier dogwood	COST4	33	0 – T		0-T	0-T	0-T	0-T
Other native shrubs	2SB		0 – 5		0-220	0-225	0-230	0-235
Total Annual Production (lbs./acre):			100%		4400	4500	4600	4700

* Woolly sedge typically occurs on mineral soils, woolfruit sedge typically occurs on organic soils.

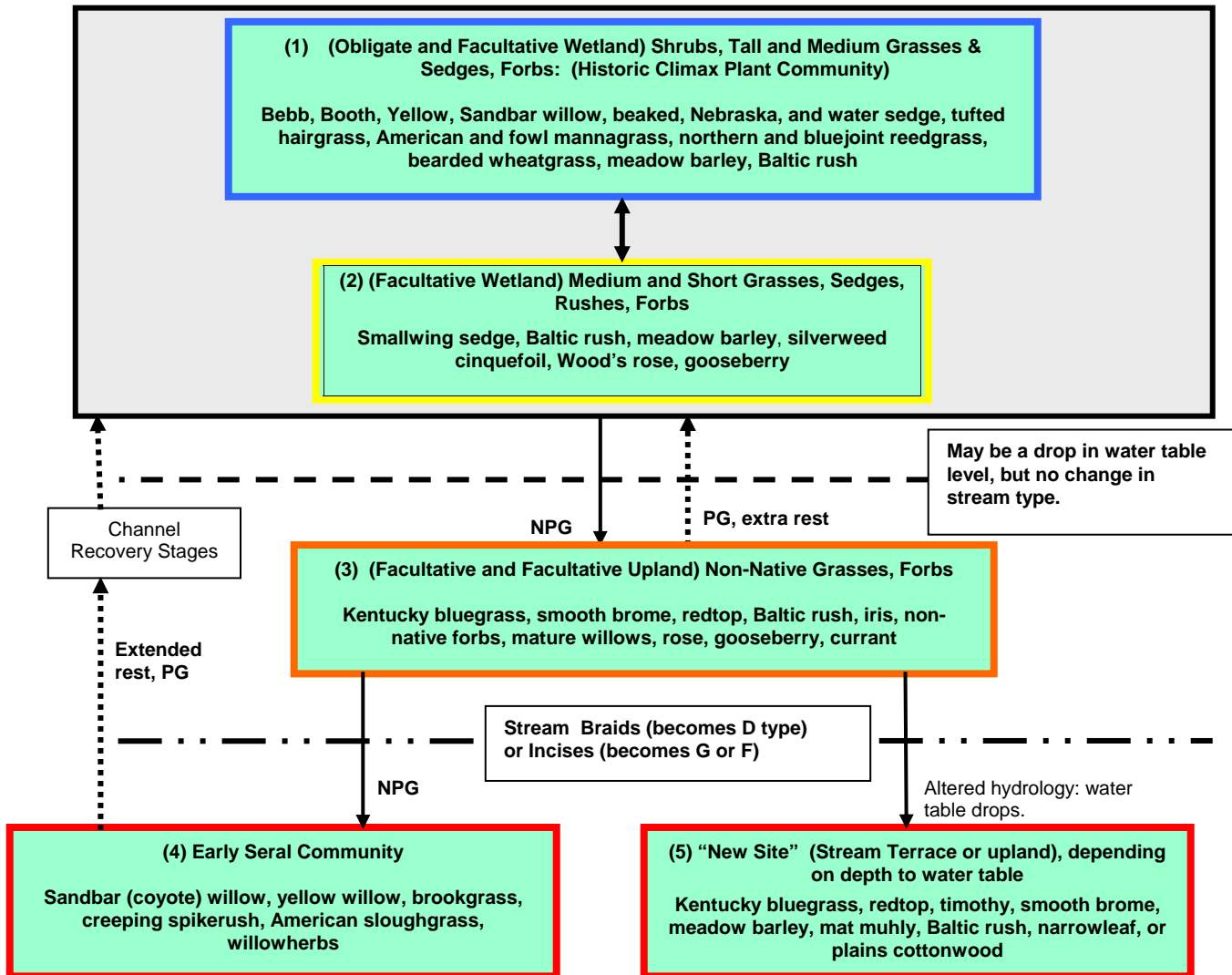
Trees: Plains or Narrowleaf Cottonwood may occur on this site.
(If the canopy cover from the trees exceeds 10%, refer to the site description for Stream Terrace.)

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5c. Plant Communities and Transitional Pathways (diagram)



Smaller boxes within a larger box indicate that these communities will normally shift among themselves with slight variations in precipitation and other disturbances. Moving outside the larger box indicates the community has crossed a threshold (heavier line) and will require intensive treatment to return to Community 1 or 2. Dotted lines indicate a reduced probability for success. Yellow boxes indicate caution that the community may be in danger of crossing a threshold. Orange boxes represent communities that have crossed over thresholds from the HCPC and may be difficult to restore with grazing management alone. Red boxes represent communities that have severely shifted away from the HCPC and probably cannot be restored without significant inputs.

NOTE: Not all species present in the community are listed in this table. Species listed are representative of the plant functional groups that occur in the community.

PG = Prescribed Grazing: Use of a planned grazing strategy to balance animal forage demand with available forage resources. Timing, duration, and frequency of grazing are controlled and some type of grazing rotation is applied to allow for plant recovery following grazing.

NPG = Non-Prescribed Grazing: Grazing which has taken place that does not control the factors as listed above, or animal forage demand is higher than the available forage supply.

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6. Livestock Grazing Interpretations: Managed livestock grazing is suitable on this site as it has the potential to produce a large amount of high quality forage. This site is sensitive to inappropriate grazing management. Management objectives should include maintenance or improvement of the plant community that is specific to this riparian/wetland area. Heavy stocking and season long use of this site is detrimental and will alter the plant community composition resulting in potential stream and riparian area degradation over time.

Vegetation is important for this site to maintain its proper function and stability. A plant community having a strong, healthy root system is important for maintaining this ecological site and the integrity of the associated streambank. Vegetation also acts as a filter for sediment and nutrients that may be carried by surface runoff from the adjacent uplands to the stream.

Soil compaction and/or streambank shearing can occur because of the wet soils often associated with this ecological site. Grazing should occur after soils have dried unless the amount of time the livestock spend on this site can be managed. Plant communities 1 and 2 will shift back and forth with variations in weather/climate, frequency and duration of flooding, depth to water table, and soils, as well as grazing use.

These communities can be maintained or improved by: providing occasional rest during the growing period, grazing for a shorter period of time, limiting duration of use during the hot season. Grazing when the upland vegetation is green and high quality can help reduce livestock use of this site. Strategically locating livestock supplements, such as low moisture block, can help attract livestock away from riparian areas. Several studies as well as experience have shown that providing off-stream stock water can significantly reduce the amount of time livestock will spend at this site.

Recommended grazing periods for the hot season (generally July 1 through September 15) is generally no more than 14 days. During the other times of the grazing season, the recommended grazing period can be up to 28 days. A switch to browse use can indicate the need to move livestock from this site to maintain or improve the shrub community.

When Plant Community 2 occurs as a result of non-prescribed grazing, management strategies need to be implemented soon to avoid further deterioration. This community is still stable, productive, and healthy provided it receives proper management. Improved grazing management alone can usually move this community back to one more similar to potential fairly quickly, or at least prevent any further degradation. However, continuation of non-prescribed grazing will eventually cause the community to cross a threshold whereby returning to a community similar to either 1 or 2 becomes more difficult.

Plant Community 3 is the result of long-term, continuous season long grazing; annual, early spring seasonal grazing; repeated long duration hot season use; a lowering of the water table; or a combination of these.

This community is typically comprised of non-native grasses such as Kentucky bluegrass or redtop. Additional rest is a recommended treatment as it often helps facilitate replacement of these with desired native obligate species. Extra rest is intended to maintain more above ground production and help restore some of the stability and natural hydrology of the site. This growth helps trap sediment during flood events. Over time, the trapped sediment begins to restore the stream banks. The stream's cross section often becomes narrower and deeper as a result. This often leads to the water column/water table in the system raising. Restored natural hydrology will cause a shift back to the native species of the site.

Sites having mainly over-mature and decadent willows need a treatment strategy that will allow for establishment of younger plants. Often, depending on the site and situation, treatments in addition to grazing management may be necessary, such as temporary fencing to restrict access to the riparian area.

Plant Community 3 has significantly reduced forage production. It will respond positively to improved grazing management but prescribed grazing management alone is seldom enough to return it to one resembling either Community 1 or 2 once it has degraded to this point. Additional rest is often necessary for re-establishment of the desired species and to restore the stability and health of the site. Prescribed grazing usually needs to be coupled with

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other practices which generally require sizeable economic inputs, such as temporary fencing, along with a significant amount of time, usually many years.

There are sometimes situations where the stream has become braided or incised and there is minimal potential for restoring original hydrology, yet there is still a significant component of willows and other woody species that are desirable to maintain. Rest should be included in the management plan to aid with the maintenance of the woody species that are present and to establish multiple age classes. Without frequent flooding providing habitat for new seedling establishment, these plants will depend on vegetative means for reproduction. Rest allows that to happen. The rest period needs to be long enough (often 3-5 years or more, depending on their growth rate) to allow the new sprouts to grow out of reach of the grazing/browsing animal. These areas can often be safely utilized at a time of year when the herbaceous component is lush. Consider techniques to either help attract the animals out of these areas or restrict their access.

A site dominated by an early seral plant community (community 4) will also need rest annually sometime during the growing season until the site has stabilized and the plant community begins to move towards mid or late seral. Mid to late seral species on this ecological site are predominantly obligate and facultative-wet.

Riparian ecological sites need to be managed as part of a plan for all grazing lands and not treated as a separate entity. Otherwise, some component of the ecosystem will not be properly managed.

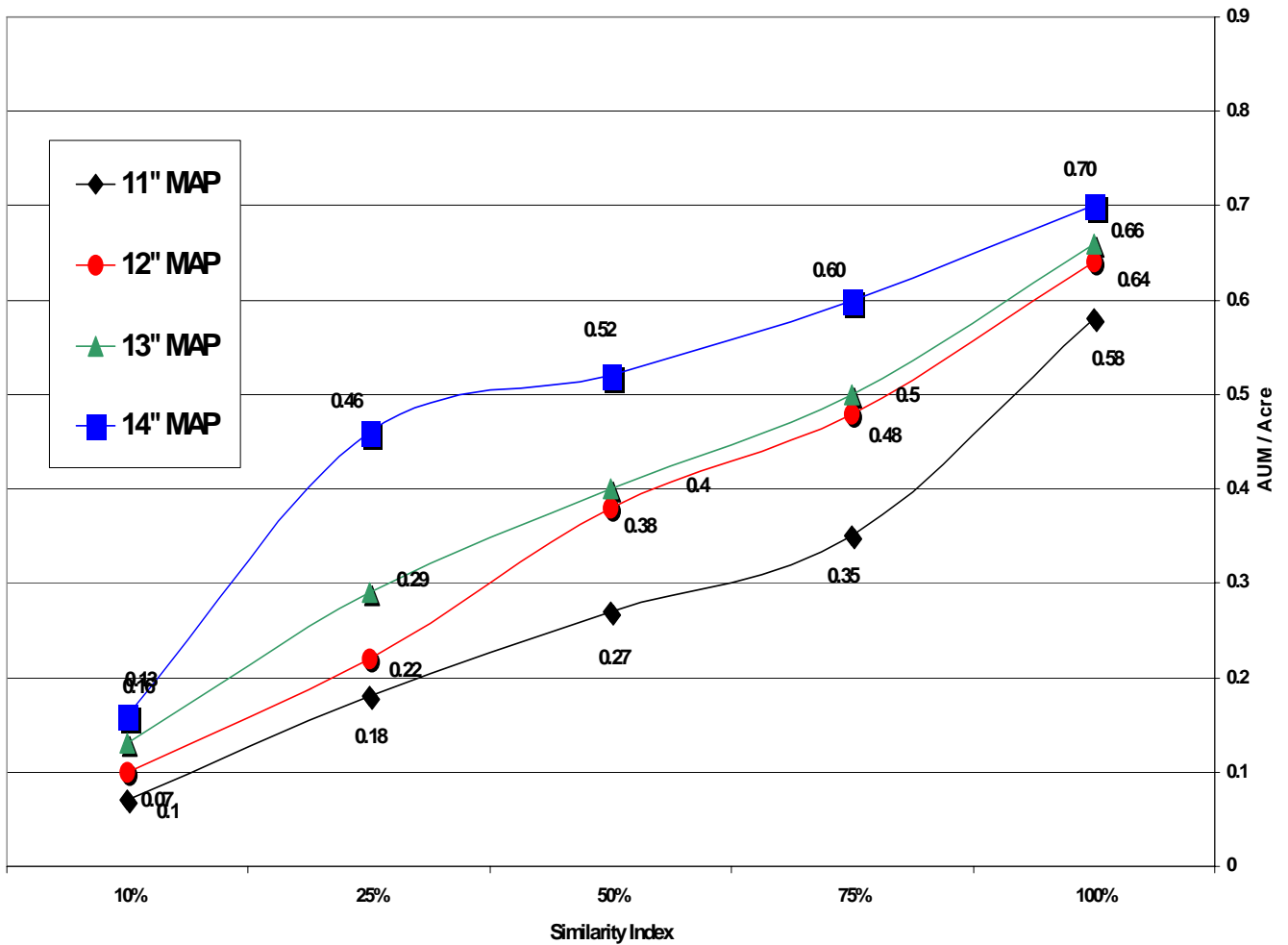
6a. Guide to Safe Stocking Rates: The following charts provide guidance for determining an initial safe stocking rate. Animal Unit Month (AUM) figures are based on averages of forage production from data collected for this site over several years. The characteristic plant communities and production values listed may not accurately reflect the productivity of a specific piece of land. These tables should not be used without on-site information collected to determine the average forage productivity of the site. Adjustments to stocking rates for each range unit must be made based on topography, slope, distance to livestock water, and other factors which effect livestock grazing behavior.

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Stocking Rate Guide (Cattle)
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6b. Stocking Rate Guide:

Major Plant Community Dominant Plant Species	MAP	Total Production (pounds/ac)	Cattle			Sheep		
			Forage Production	AUM/ac	Ac/AUM	Forage Production	AUM/ac	Ac/AUM
1. Tall and Medium Sedges & Grasses (HCPC) <i>Bebb, Booth, Yellow, Sandbar willow, beaked, Nebraska, and water sedge, tufted hairgrass, American and fowl mannagrass, northern and bluejoint reedgrass, bearded wheatgrass, meadow barley, Baltic rush</i> (S.I. > 70%)	13–14"	4600-4700	2300-2575+	.63 -.70 +	1.4-1.6	2525-2825+	.69 -.77 +	1.3-1.4
	11–12"	4400-4500	2200-2475+	.60 -.68 +	1.5-1.7	2425-2700+	.66-.74 +	1.4-1.5
2. Medium & Short Grasses & Sedges, Rushes <i>Smallwing sedge, Baltic rush, meadow barley, silverweed cinquefoil, Wood's rose, gooseberry</i> (S.I. 40-70%)	13–14"	2530-3995	1150-2200	.31 –.60	1.7-3.2	1275-2400	.35 –.66	1.5-2.9
	11–12"	2420-3825	1100-2100	.30 –.57	1.7-3.3	1200-2300	.33 –.63	1.6-3.1
3. Non-Native Grasses Rushes, Forbs, & Sedges <i>Kentucky bluegrass, smooth brome, redtop, Baltic rush, iris, non-native forbs, mature willows, rose, gooseberry, currant</i> (S.I. 20-40%)	13–14"	1380-2820	550-1675	.15 –.46	2.2-6.7	700-1975	.19 –.54	1.9-5.2
	11–12"	1320-2700	525-1625	.14 –.46	2.2-7.0	650-1900	.18 –.52	1.9-5.6
4. Early Seral Community <i>Coyote willow, brookgrass, creeping spikerush</i> (S.I. < 20%)	13–14"	880-1880	175-575	.05 –.16	6.4-20.9	275-650	.08 –.18	5.6-13.3

These stocking rates are based on the herbaceous component only. They are calculated from average forage production values using a 25% Harvest Efficiency factor for preferred and desirable plants, and 10% Harvest Efficiency for less desirable species. AUM calculations are based on 915 pounds per animal unit month (AUM) for a 1,000-pound cow with calf up to 6 months. No adjustments have been made for site grazability factors, such as steep slopes, site inaccessibility, or distance to drinking water.

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7. Wildlife Interpretations: The Riparian Subirrigated Ecological Site is among the most important wildlife habitats in Montana. In fact, the wildlife value of this site is far greater than its limited occurrence the landscape (5% at the most) would indicate. Somewhere around 75% of all of our wildlife species use this site at some point in their life cycle. The winding, linear nature of stream corridors provides travel corridors and connectivity between numerous upland habitats and the seasonal ranges of many wildlife species. The combination of succulent green forage, complex habitat structure and water make this site exceptionally attractive to both resident and migratory wildlife. Riparian shrub lands provide migration stop-over habitat for Neotropical migratory birds as they travel between northern breeding ranges and winter habitats as far south as Central and South America. Other species, moose, for example, use riparian habitat year-round. Invasive weeds often degrade this ecological site. Notable weeds include Canada thistle, leafy spurge, hound's tongue, poison hemlock, burdock and Russian olive. Uncontrolled livestock grazing has degraded many miles of Riparian Subirrigated and contributed to the spread of noxious weeds. On the other hand, long-term non-use may also result in noxious weed infestation. The condition of riparian subirrigated habitat often determines the health of fisheries in associated streams.

Plant Community 1: Obligate and Facultative Wetland Shrubs, Tall and Medium Grasses & Sedges, Forbs:

The diversity of succulent forbs along with grass and shrub variety provides substrate for numerous insect, and other invertebrate species. Streams associated with this ecological site support native salmonids and other fish species, which depend on overhead cover, overhanging banks, and insects - all produced by woody and herbaceous plants growing in this community. Three species of garter snakes frequent the moist habitat available here, along with the racer, a bluish-tinged snake. Numerous breeding and migratory birds use the complex habitat in this willow-sedge community. Examples include common yellowthroats, MacGillivray's warbler and gray catbirds. Sage grouse broods forage for insects and succulent forbs in this type. Moose, elk and deer make significant use of this community as a forage source and travel corridor. Representative small mammals include the mountain cottontail and western jumping mouse.

Plant Community 2: Facultative Wetland Medium and Short Grasses, Sedges, and Rushes, Forbs: Insect diversity declines with the reduction in forb and shrub variety. Native fish habitat suffers from a reduction in bank cover and, often, a somewhat higher width-depth ratio in the stream. Breeding bird diversity declines as the taller shrub component is lost. Cover values for big game species and small mammals decreases for the same reason.

Plant Community 3: Facultative and Facultative Upland, Non-Native Grasses, Forbs: Wildlife habitat values are considerably reduced in this low successional plant community. A lowered water table follows the loss of root mass in the soil and, in some cases, a down-cut stream surface. The resulting loss of plant diversity supports fewer insect species. Cover and food supplies are significantly reduced for most wildlife. Fish habitat is poor following removal of bank cover and development of a wider, shallower stream. Mature willows may still provide some cover but shrub reproduction is insignificant.

Plant Community 4: Early Seral Species: This community is much less diverse than the HCPC. However, recovery of willows and native herbaceous species provides more habitat diversity than Community 3, above. Fish habitat is poor because stream habitat features such as deep pools and overhanging banks are not yet available. Breeding birds and a wide variety of mammals find improving cover with the development of pioneer plant species.

Plant Community 5: "New" site: Down cutting of the stream dries out the site. Resulting habitat values for species depending on riparian habitat largely disappear. Over time, a new HCPC community may develop adjacent to the down-cut stream but will be significantly narrower than the original community. Fish habitat is very poor; bank cover and pool-riffle complexes are limited. Terrestrial wildlife species find little cover and food in this community.

8. Hydrology Data: The soils associated with this ecological site are generally in Hydrologic Soil Group B. The infiltration rates for these soils will normally be moderate. The runoff potential for this site is low. Runoff curve numbers generally range from 61 to 79. This ecological site typically receives and generates runoff. The site is typically wet, receiving the majority of its moisture by its hydrologic connection with stream flow and water table fluctuations.

Ecological Site Description—Rangeland

Riparian Subirrigated (RSb), 11–14" MAP

**MLRA: 58AC – Sedimentary Plains, Central
R058AC617MT**

Runoff is characterized by frequent surface flooding from over bank flows. On site precipitation is generally considered a minor source of runoff from this site. As the stream flow subsides, runoff typically becomes subsurface return flows.

Any condition that would cause an increased instantaneous runoff peak (e.g., poorly designed clear cutting in the upper watershed) could degrade the channel causing either lateral instability or head cutting. A braided (Rosgen D type) or an incised stream (G or F type) is typically the result.

Down cutting (incisement) would be a catastrophic event to this ecosystem. Channel down cutting will increase subsurface drainage, lower the seasonal water table, reduce frequency of over bank flow, and reduce duration of near surface saturation. Bank erosion will increase.

The stream, in time, will adjust to a lower base elevation. However, the result of down cutting will be a new floodplain at a lower elevation, lower water table elevation, less flood prone width, and less adjacent riparian/wetland area. The dominant vegetation in the previous riparian/wetland area will change (i.e., from Obligate and Facultative-wet to Facultative, etc.). Given enough time, these conditions will eventually result in this site becoming either a Stream Terrace, or upland site, depending on resulting depth to the water table

The vegetative community can also be changed for other reasons, such as if the water table drops during the growing season due to a lowering of base elevation of adjacent streams, or several years of drought conditions.

9. Site Documentation:

Authors: REL, RSN, POH, 2003

Supporting Data for Site Development:

NRCS–Production & Composition Record for Native Grazing Lands (Range-417): 2

BLM–Soil & Vegetation Inventory Method (SVIM) Data: 0

NRCS–Range Condition Record (ECS-2): 7

NRCS–Range/Soil Correlation Observations & Soil 232 notes: 12

Field Offices where this site occurs within the state:

Big Sandy	Columbus	Harlowton	Roundup
Big Timber	Crow Agency	Joliet	Stanford
Billings	Fort Belknap	Lewistown	White Sulphur Springs
Chinook	Hardin	Malta	Winnett

Site Approval: This site has been reviewed and approved for use:

Loretta J. Metz
State Rangeland Management Specialist

10/22/2004
Date

Ecological Site Description—Rangeland

Riparian Subirrigated (RSb), 11–14" MAP

MLRA: 58AC – Sedimentary Plains, Central
R058AC617MT



Riparian Subirrigated
11-14 inch
Sedimentary Plains, Central